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Draconectes narinosus, a new genus and species of cave fish from an island of Halong Bay, Vietnam (Teleostei: Nemacheilidae)

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***Draconectes narinosus*, a new genus and species of cave fish from an island of Halong Bay, Vietnam (Teleostei: Nemacheilidae).** - *Draconectes narinosus*, new genus and species, is described from a cave in Van Gio island in Halong Bay, Vietnam. Besides characters commonly observed in cave fishes such as absence of eyes and pigmentation, it is distinguished by having the pores of the lateral line system on body and head situated at the tip of small papillae, a row of papillae along each side of the base of the dorsal fin, 7+6 branched caudal-fin rays; and the nostrils adjacent, posterior one broader than anterior one, anterior one broad and situated at the tip of a short tube. The relations of this species are not known but it has some similarity with several species described from caves of Guangxi (China) that had been placed in the genus *Oreonectes*.

Keywords: loach - *Oreonectes*.

INTRODUCTION

Loaches of the family Nemacheilidae are one of the important component of the fish fauna of fast flowing water bodies of Southeast Asia. Some 140 valid species are already known from mainland Southeast Asia (e.g. Kottelat, 1990a, 1998, 2000, 2001 a-b, 2012, in press; Freyhof & Serov, 2001; Nguyen, 2005). Most species inhabit hill and foothill streams where they are usually found under stones and rocks. This usual habitat certainly explains that many species have been able to penetrate into caves. In areas with karstic formations, they are a frequent feature of the subterranean fauna. Several species are already known from caves of the Indochinese Peninsula (*Schistura spekuli* Kottelat, 2004 in Vietnam, *S. kaysonei* Vidthayanon & Jaruthanin, 2002 in Laos, *S. oedipus* Kottelat, 1988, *Nemacheilus troglocataractus* Kottelat & Géry, 1989, *S. jarutanini* Kottelat, 1990b, *S. spiesi* Vidthayanon & Kottelat, 2003 and *S. deansmarti* Vidthayanon & Kottelat, 2003 in Thailand) and several are already known that await description. I describe here a new species collected in Halong Bay in northern Vietnam.

Halong Bay [Vin Ha Long] is a large area (about 1500 km^2) of submerged limestone landscape. It is occupied by about 2000 islands that form one of the best known karstic landscape and it is one of the main tourist attraction of Vietnam. In 1994, Halong Bay was listed among UNESCO World Heritage Site. This extensive karst

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hosts a very diverse and unique fauna and flora, terrestrial, marine, freshwater, epigean as well as subterranean. In 1999, within 10 days of sampling, a team obtained more than 100 new species of snails, crabs, fish and other animals (Vermeulen & Whitten, 1999: 56; pers. obs.). In 2003, Boris Sket and Peter Trontelj surveyed the fauna of a number of caves within Halong Bay for Fauna and Flora International Vietnam Programme. A new species of cave loach was obtained and is described in the present study.

MATERIAL AND METHODS

Methods for counts and measurements follow Kottelat (1990a). Note that head length is dorsal head length, not lateral head length. Abbreviations used are: MHNG, Muséum d'Histoire Naturelle, Genève; OBBFUL, Zoological Collection, Oddelek za Biologijo, Biotehniška Fakulteta, Univerza v Ljubljani, Ljubljana; SL, standard length.

Draconectes new genus

TYPE SPECIES: *Draconectes narinosus*, new species.

DIAGNOSIS: *Draconectes* is distinguished from the other genera of the family by having pores of the lateral line system on body and head situated at the tip of small papillae, and a row of papillae (apparently with pores) along each side of the base of the dorsal-fin. Other characters, not unique to the genus, are: 7+6 branched caudal-fin rays; conspicuous dorsal and ventral crests on caudal peduncle; nostrils adjacent, posterior one broader than anterior one, anterior one broad and situated at the tip of a short tube; lips thin and smooth; body without scales; eye absent.

ETYMOLOGY: From the Greek δράκων (drakon; a dragon), and νήκτης (nectes; a swimmer); a reference to the habitat of the only known species of the genus, on an island of Halong Bay. Halong means 'descending dragon' and is derived from the local legend that dragons created the landscape of the bay. Gender masculine.

Draconectes narinosus new species Figs 1-3

HOLOTYPE: MHNG 2730.080, 24.7 mm SL; Vietnam: Quang Ninh Province: Ha Long Bay: island Đáo Van Giò: phreatic lake in cave Đông Duc Tiên, 20°50.34'N 107°16.77'E; B. Sket, 17 June 2003.

PARATYPE: OBBFUL uncat., 20.8 mm SL; same data as holotype.

DIAGNOSIS: *Draconectes narinosus* is the only known species of the genus; see diagnosis of genus.

DESCRIPTION: See Figure 1 for general appearance and Table 1 for morpho - metric data of holotype and paratype. The specimens are quite soft and uneasy to handle, and consequently the description of the soft anatomy uneasy and sometimes approximate. A moderately elongate nemacheilid with body depth about equal from head to dorsal-fin origin. Behind dorsal fin, body depth decreasing to caudal-fin base. Head slightly depressed, anterior half conspicuously depressed. Body rounded ante - riorly to compressed posteriorly. Genital papilla very large (compared to other species of nemacheilids). Conspicuous dorsal and ventral crests on caudal peduncle, starting very close to posterior extremity of dorsal- and anal-fin bases, outline of dorsal crest

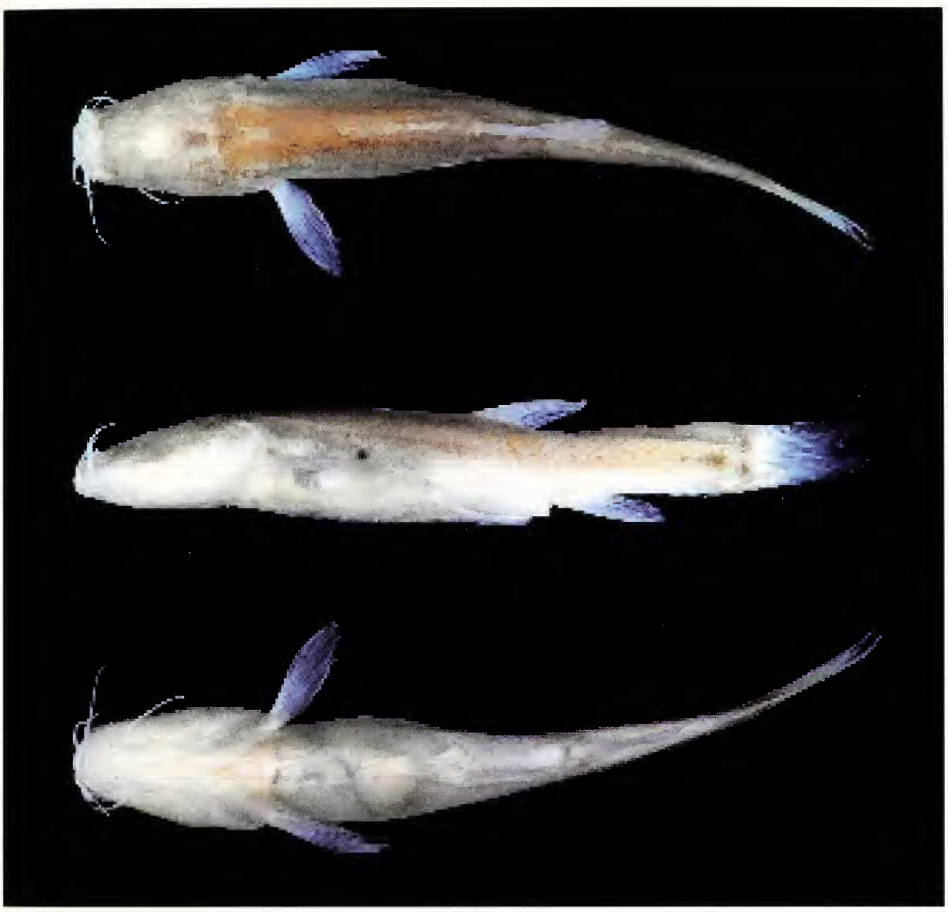

FIG. 1
Draconectes narinosus, MHNG 2730.080, 24.7 mm SL; Vietnam: Ha Long Bay: Dao Van Gio island, Dong Duc Tien cave; right side, reversed. Photographs by Tan Heok Hui.

continuous with dorsal outline of caudal fin. Caudal peduncle 1.7-2.0 times longer than deep (depth including crest). Largest recorded size 24.7 mm SL.

Dorsal fin with 4 simple and 7 branched rays (a single ray articulating on last pterygiophore); distal margin straight. Pectoral fin with 11 rays, reaching about halfway to 3/5 of distance to pelvic-fin base. No pelvic axillary lobe. Pelvic fin with 6 rays, reaching about ¾ of distance to anal-fin origin, not reaching anus which is situated immediately in front of anal fin; origin slightly in front of vertical through dorsal-fin origin. Anal fin with 3 simple and 5 branched rays (a single ray articulating on last pterygiophore). Caudal fin forked, with 7+6 branched rays, with very narrow interradial membranes resulting in an elongated appearance; procurrent rays difficult to count, at least 8 dorsal and 7 ventral.

No scales on body. Lateral line indistinct but complete, marked by a series of 30-40 papillae along its course, apparently each with a pore at its tip. Four and six

TABLE 1. Morphometric data of holoype and paratype of *Draconectes narinosus*.

	holotype	paratype
Standard lenth (mm)	24.7	20.8
Total lenth (mm)	29.0	24.7
In percent of standard length		
Total length	117.4	118.8
Head length (dorsal)	22.3	23.6
Head length (lateral)	28.3	27.9
Predorsal length	57.9	59.6
Prepelvic length	55.5	56.7
Preanal length	70.0	72.6
Head depth	13.0	12.5
Body depth at dorsal-fin origin	13.4	13.0
Depth of caudal peduncle	10.5	12.5
Length of caudal peduncle	21.1	21.2
Maximum head width	15.8	15.9
Body width at dorsal-fin origin	7.7	11.5
Length of dorsal fin	19.0	19.2
Length of upper caudal-fin rays	17.4	21.6
Length of lower caudal-fin rays	17.4	20.2
Length of anal fin	17.8	17.8
Length of pelvic fin	15.0	12.5
Length of pectoral fin	18.2	17.8

similar papillae on each side of dorsal-fin base of holotype, possibly with a pore; apparently 2 papillae in paratype. Pores of cephalic lateral line system also situated at tip of papillae (Fig. 2), difficult to count with accuracy because of state of fixation and because of presence of other, unpored papillae. 9 (?) supraorbital, 13 (?) preoperculo-mandibular (large, organised in a regular canal until angle of mouth) and 3 (?) hardly distinct supratemporal pores. Infraorbital row present, difficult to distinguish, about 9-12 (?) papillae/pores along anterior part of canal. Supraorbital canals almost meeting anteriorly.

Nostrils adjacent, posterior opening larger than anterior one; anterior nostril at tip of a short and broad tube; olfactory rosette slightly protruding through posterior opening. Mouth gape about 2 times wider than long (Fig. 1). Lips thin but fleshy, apparently smooth. No median incision in upper lip. A median notch in lower lip, shallow but long. No processus dentiformis. A median concavity in lower jaw. Inner rostral barbel reaching about to corner of mouth; outer one reaching about ½ of lateral head length. Maxillary barbel reaching about 2/3 of lateral head length. Shape of intestine unknown (specimens not dissected).

SEXUAL DIMORPHISM: No external character observed that would be indicative of sexual dimorphism.

COLORATION: When preserved, body background pale yellowish. Dark brown pigments on upper half of flank, giving a pale brownish appearance, denser along mid-lateral axis and on back in front of dorsal fin. Papillae of lateral line and along base of dorsal fin with dark brown pigments. Head pale yellowish, darker along posterior edge of skull, around rim of posterior nostril and at possible position of a foramen.

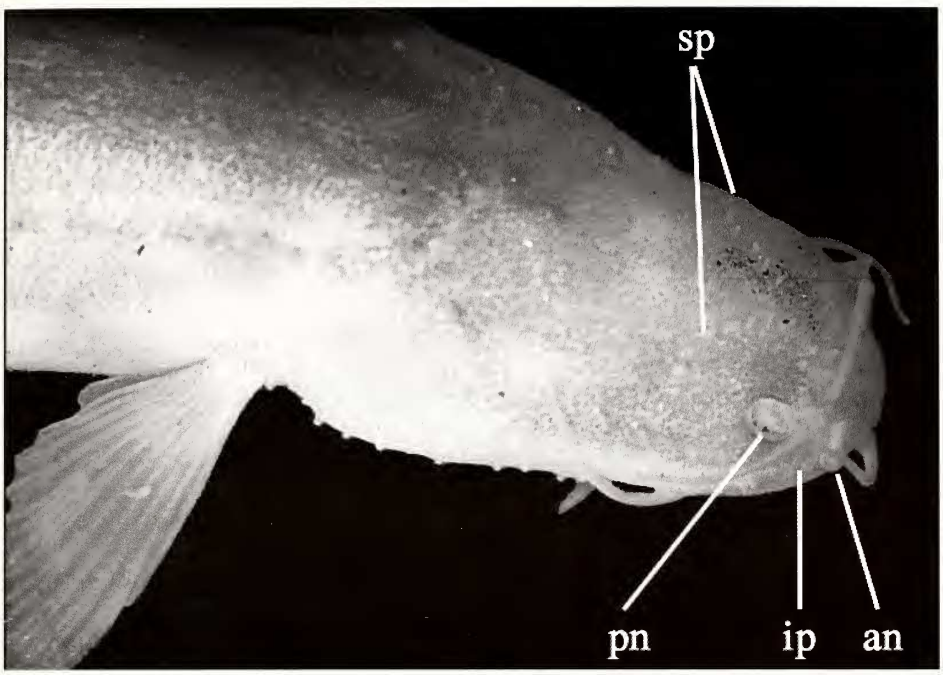

FIG. 2

Draconectes narinosus, OBBFUL, uncat., 20.8 mm SL; dorsal view of head. an, anterior nostril; ip, pores of infraorbital row; pn, posterior nostril; sp, pore of supraorbital row. Photograph by Boris Sket.

Difference between brownish dorsal and white ventral parts of head very contrasted. Dorsal crest and posterior half of ventral crest brownish. Two darker brown patches at base of caudal-fin rays. Fins hyaline.

In life (based on photographs, Fig. 3): Body pale reddish brown. A faint roundish greyish mark at end of caudal peduncle. Papillae along base of dorsal fin blackish.

DISTRIBUTION: Presently known only from the type locality, in Dong Duc Tien cave, on Dao Van Gio island, in Halong Bay. Dao Van Gio is located in the eastern part of Ha Long Bay, about 15 km off the coast.

NOTES ON BIOLOGY: The following information are provided by the collector, Boris Sket (in litt, 31 Oct. 2004). The only water body of a phreatic (not anchihaline) character that could be reached on a small island of Ha Long Bay was inside Dong Duc Tien cave on Dao Van Gio island, a very dissected karst island. Altitude was not measured but is estimated to have been at about sea level. At the time of the visit it was a 'lake' approximately 100 x 20 m, fragmented by large boulders into a system of interconnected basins with loamy bottom and up to 1.5 m deep. The water was totally stagnant. As can be inferred from its fauna, this body of water is, at least during highest water levels, connected and included into a general phreatic water body of the island. Its water is nearly limnic (4-5 ppt salinity). The island is slightly over 1 km^2 and

extremely ramified, the width of the branches reaching a maximum of 400 m, and only at a few locations.

Five fish individuals have been sighted, but only two of them caught. Another interesting and exceptional animal from this lake is the moderately dense population of a tiny troglomorphic amphipod of the family Sebidae (*Seborgia vietnamica* Jaume, Sket & Boxshall, 2009); it most probably serves as the main food supply for the fish. Copepods and oligochaetes were extremely scarce.

ETYMOLOGY: The Latin *narinosus* means 'who has large nostrils'. An adjective.

REMARKS: It is not possible to determine the relationships of *D. narinosus* and it is not possible to place it in any of the recognised genera, and therefore it is placed in a new genus. Some of the characters used to diagnose the genus (absence of eye and scales, pale body) are obviously related with the cave habitat and as such reductive and not informative about relationships. The pores of the cephalic and body lateral line system situated at the tip of papillae is apparently unique in nemacheilids; this character too is possibly an adaptation to cave habitat. The relatively large nostrils and their wide openings are apparently unique in the family, as are the papillae along the base of the dorsal fin.

Schistura papulifera Kottelat *et al.*, 2007, a cave species from Assam, India, also has projections on the head, but in this species the head is covered by small skin projections, the pores of the cephalic lateral line system are not situated at the tip of papillae and there are 5 pores in the supratemporal canal (vs. 3 in *Draconectes*).

Most Southeast Asian species of nemacheilids have 9+8 branched caudal-fin rays. This number is sometimes reduced by 1 or 2 in some species (8+8, 8+7); in such cases it is usually a reliable diagnostic character (e.g. Kottelat, 1990a, 2000). The reduced number of caudal-fin rays is usually associated with small size in nemacheilids (e.g., *Schistura paucicincta* Kottelat, 1990a, *S. rikiki* Kottelat, 2000, *S. diminuta* Ou et al., 2011) and other fishes (e.g. *Paedocypris*, see Kottelat *et al.*, 2006, Britz & Conway, 2011), but small size is not always associated with reduced number of caudal rays (e.g. *Sundadanio*, see Conway *et al.*, 2011).

Many genera and species of East Asian nemacheilids have a lower number of branched caudal-fin rays. The reduced number of caudal-fin rays (13) in *Draconectes*, is shared with the genera *Oreonectes* (12-16; Du *et al.*, 2008) and *Lefua* (13-15; Sawada, 1982). *Draconectes* is distinguished from *Lefua* and *Oreonectes* in having the anterior and posterior nostrils adjacent (vs. widely separated, posterior one at short distance of anterior margin of orbit); the anterior nostril situated at the tip of a short and wide tube (vs. on a short and narrow tube whose posterior rim is produced in a long filament, the 'nasal barbel'); a complete lateral line (vs. absent or up to 18 pores, not reaching vertical of pelvic fin); and the dorsal-fin origin slightly behind a vertical through pelvic-fin origin (vs. conspicuously behind the base of the pelvic fin in some *Oreonectes*). *Oreonectes* occurs in southeastern China and northern Vietnam; and *Lefua* in the Amur drainage, Korea, northeastern China and Japan.

As presently understood, *Oreonectes* includes eleven valid species (Kottelat, in press), several of them known from cave habitats. They can be separated into two groups. The first group includes five species (*O. anophthalmus* Zheng, 1981, *O. guananensis* Yang *et al.*, 2011a, *O. luochengensis* Yang *et al.*, 2011b, *O. platycephalus*

FIG. 3

Draconectes narinosus, MHNG 2730.080, 24.7 mm SL; Vietnam: Ha Long Bay: Dao Van Gio island, Dong Duc Tien cave; immediately after capture. Photograph by Boris Sket.

Günther, 1868, *O. polystigmus* Du *et al.*, 2008) that have, among other characters, a rounded caudal fin and the dorsal-fin origin clearly behind the pelvic-fin origin; this group includes *O. platycephalus*, the type species of the genus. This first group is present in Guangxi and Guangdong provinces in China and in coastal streams of Vietnam (northeast of Halong; Kottelat, 2001). According to Tang *et al.* (2012), all but *O. platycephalus* are known from caves. Du *et al.* (2008) and Huang *et al.* (2009) considered that a sixth species, *O. retrodorsalis* Lan *et al.*, 1996, also belongs to this first group, in which it is the only species with an emarginate caudal fin; the figure in the original description (Lan, Yang & Chen, 1996) shows a forked caudal fin with rounded lobes.

The second group includes species that have, among other characters, a forked caudal fin, the dorsal-fin origin in front of the pelvic-fin origin, a more slender body and a distinct dorsal crest on the caudal peduncle. This second group includes five named species (*O. elongatus* Tang *et al.*, 2012, *O. furcocaudalis* Zhu & Cao, 1987, *O. macrolepis* Huang *et al.*, 2009, *O. microphthalmus* Du *et al.*, 2008, *O. translucens* Zhang *et al.*, 2006), all known only from Guangxi, China. All have been collected inside caves (Tang *et al.*, 2012). These species do not seem congeneric with *O. platycephalus*, but in the absence of material I cannot comment on their status. It is further not clear whether all species in this second group are closely related; the illustration in the original description of *O. macrolepis* (Huang *et al.*, 2009) shows a fish with a more rounded body (vs. compressed in the other species), rounded head (vs. pointed) and rounded caudal-fin lobes (vs. pointed). *Draconectes* potentially could have relationships with some of them but is distinguished from all by the adjacent anterior and posterior nostrils.

The nemacheilid fauna of northern Vietnam and coastal drainages of Guangxi is still poorly known (Kottelat, 2001, pers. obs.; Freyhof & Serov., 2001); the recent poor descriptions of several species (Nguyen, 2005) has compounded the situation. The species reported from adjacent areas of the mainland include *Oreonectes platycephalus*, *Traccatichthys taeniatus* and various species of *Schistura* (Kottelat, 2001a).

The epigean relatives of *Draconectes* probably await discovery. It is remarkable that the species managed to survive on such a small island and at such low altitude within a maze of sunken karst landscape.

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REFERENCES

Britz, R. & Conway, K. W. 2009. Osteology of *Paedocypris*, a miniature and highly developmentally truncated fish (Teleostei: Ostariophysi: Cyprinidae). *Journal of Morphology* 270: 389-412.

Conway, K. W., Kottelat, M. & Tan, H. H. 2011. Review of the Southeast Asian miniature cyprinid genus *Sundadanio* (Ostariophysi: Cyprinidae) with descriptions of seven new species from Indonesia and Malaysia. *Ichthyological Exploration of Freshwaters* 22(3): 251-288.

Du, L.-N., Chen, C.-Y. & Yang, J.-X. 2008. A review of the Nemacheilinae genus *Oreonectes* Günther with descriptions of two new species (Teleostei: Balitoridae). *Zootaxa* 1729: 23-36.

Freyhof, J. & Serov, D. V. 2001. Nemacheiline loaches from Central Vietnam with descriptions of a new genus and 14 new species (Cypriniformes: Balitoridae). *Ichthyological Exploration of Freshwaters* 12(2): 133-191.

Günther, A. 1868. Catalogue of the fishes in the British Museum. Vol. 7. *British Museum, London*, XX + 512 pp.

Huang, A.-M., Du, L.-N., Chen, C.-Y. & Yang, J.-X. 2009. [*Oreonectes macrolepis*, a new nemacheiline loach of genus *Oreonectes* (Balitoridae) from Guangxi, China. *Zoological Research* 30(4): 445-448. [In Chinese, English summary].

Jaume, D., Sket, B. & Boxshall, G. A. 2009. New subterranean Sebidae (Crustacea, Amphipoda, Gammaridea) from Vietnam and SW Pacific. *Zoosystema* 31(2): 249-277.

Kottelat, M. 1988. Two species of cavefishes from Northern Thailand in the genera Nemacheilus and Homaloptera (Osteichthyes: Homalopteridae). *Records of the Australian Museum* 40(3-4): 225-231.

Kottelat, M. 1990a. Indochinese nemacheilines. A revision of nemacheiline loaches (Pisces: Cypriniformes) of Thailand, Burma, Laos, Cambodia and southern Viet Nam. *Pfeil, München*, 262 pp.

Kottelat, M. 1990b. New species and populations of cave nemacheilines in South and Southeast Asia (Osteichthyes: Balitoridae). *Mémoires de Biospéléologie* 17: 49-56.

Kottelat, M. 1998. Fishes of the Nam Theun and Xe Bangfai basins, Laos, with diagnoses of twenty-two new species (Teleostei: Cyprinidae, Balitoridae, Cobitidae, Coiidae and Odontobutidae). *Ichthyological Exploration of Freshwaters* 9(1): 1-128.

Kottelat, M. 2000. Diagnoses of a new genus and 64 new species of fishes from Laos (Teleostei: Cyprinidae, Balitoridae, Bagridae, Syngnathidae, Chaudhuriidae and Tetraodontidae). *Journal of South Asian Natural History* 5(1): 37-82.

Kottelat, M. 2001a. Freshwater fishes of northern Vietnam. A preliminary check-list of the fishes known or expected to occur in northern Vietnam with comments on systematics and nomenclature. *World Bank, Washington*, III + 140 pp., 15 pls.

KOTTELAT, M. 2001b. Fishes of Laos. *Wildlife Heritage Trust, Colombo*, 198 pp.

KOTTELAT, M. 2004. *Schistura spekuli*, a new species of cave fishes from northern Vietnam (Teleostei: Balitoridae). *Ichthyological Exploration of Freshwaters* 15(2): 187-191.

KOTTELAT, M. 2012. *Acanthocobitis pictilis*, a new species of loach from Myanmar and Thailand (Teleostei: Nemacheilidae). *Zootaxa* 3327: 45-52.

KOTTELAT, M. in press. Conspectus cobitidum: an inventory of loaches of the world (Teleostei: Cypriniformes: Cobitoidei). *Raffles Bulletin of Zoology*, Suppl.

KOTTELAT, M., BRITZ, R., TAN, H. H. & WITTE, K. E. 2006. *Paedocypris*, a new genus of Southeast Asian cyprinid fish with a remarkable sexual dimorphism comprises the world's smallest vertebrate. *Proceedings of the Royal Society: Biological Sciences* 273 (1589): 895-899.

KOTTELAT, M. & GÉRY, J. 1989. *Nemacheilus troglocataractus*, a new blind cavefish from Thailand. *Spixiana* 11(3): 273-277.

KOTTELAT, M., HARRIES, D. R. & PROUDLOVE, G. S. 2007. *Schistura papulifera*, a new species of cave loach from Meghalaya, India (Teleostei: Balitoridae). *Zootaxa* 1393: 35-44.

LAN, J.-H., YANG, J.-X. & CHEN, Y.-R. 1996. [One new species of cavefish from Guangxi (Cypriniformes: Cobitidae)]. *Zoological Research* 17(2): 109-112. [In Chinese, English summary].

NGUYEN, V. H. 2005. Cá nuóc ngot Viêt Nam. Tâp II. Lop ca sun va bon lien bo cua nhom ca xuong (lien bo ca that, lien bo ca dang trich, tong bo ca dang chao va lien bo ca dang chep) [Freshwater fishes of Vietnam. Volume 2]. *Nhà Xuât Ban Nông Nghiêp [Agriculture Publishing House], Hanoi*, 759 pp. [In Vietnamese].

OU, C., MONTAÑA, C. G., WINEMILLER, K. O. & CONWAY, K. W. 2011. *Schistura diminuta*, a new miniature loach from the Mekong River drainage of Cambodia (Teleostei: Nemacheilidae). *Ichthyological Exploration of Freshwaters* 22(3): 193-200.

SAWADA, Y. 1982. Phylogeny and zoogeography of the superfamily Cobitoidea (Cyprinoidei, Cypriniformes). *Memoirs of the Faculty of Fisheries Hokkaido University* 28(2): 65-223.

TANG, L, ZHAO, Y.-H. & ZHANG, C.-G. 2012. A new blind loach, *Oreonectes elongatus* sp. nov. (Cypriniformes: Balitoridae) from Guangxi, China. *Environmental Biology of Fishes*, 93(4): 483-490.

VERMEULEN, J. & WHITTEN, T. 1999. Biodiversity and cultural property in the management of limestone resources. Lessons from East Asia. *World Bank, Washington*, X + 120 pp.

VIDTHAYANON, C. & JARUTHANIN, K. 2002. *Schistura kaysonei*, (Teleostei: Balitoridae) a new cave fish from the Khammouan karst, Laos PDR. *Aqua, Journal of Ichthyology and Aquatic Biology* 6(1): 17-20.

VIDTHAYANON, C. & KOTTELAT, M. 2003. Three new species of fishes from Tham Phra Wang Daeng and Tham Phra Sai Ngam caves in northern Thailand (Teleostei: Cyprinidae and Balitoridae). *Ichthyological Exploration of Freshwaters* 14(2): 159-174.

YANG, J., WU, T.-J., WEI, R.-F. & YANG, J.-X. 2011a. [A new loach, *Oreonectes luochengensis* sp. nov. (Cypriniformes: Balitoridae) from Guangxi, China]. *Zoological Research* 32(2): 208-211. [In Chinese, English summary].

YANG, Q., WU, M.-L., LAN, J.-H. & YANG, Q. 2011b. [A new species of the genus *Oreonectes* (Balitoridae) from Guangxi, China]. *Journal of Guangxi Normal University: Natural Science Edition* 29(1): 72-75.

ZHANG, Z.-L., ZHAO, Y.-H. & ZHANG, C.-G. 2006. A new blind loach, *Oreonectes translucens* (Teleostei: Cypriniformes: Nemacheilinae), from Guangxi, China. *Zoological Studies* 45(4): 611-615.

ZHENG, B.-S. (ed.) 1981. [Freshwater fishes of Guangxi]. *Guangxi Renmin Press, Nanning*, 257 pp. [In Chinese].

ZHU, S.-Q. & CAO, W.-X. 1987. [The noemacheilines fishes from Guangdong and Guangxi with descriptions of a new genus and three new species (Cypriniformes: Cobitidae)]. *Acta Zootaxonomica Sinica* 12(3): 323-331. [In Chinese, English summary].